

TOTAL
Total Petroleum, Inc.

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US EPA RECORDS CENTER REGION 5



483396

BENJAMIN E. WHITE, P. E.
ENVIRONMENTAL ENGINEER

May 1, 1984

Mr. Robert Basch, District Supervisor
Hazardous Waste Division
Michigan Department of Natural Resources
Box 30028
Lansing MI 48909

Dear Mr. Basch:

This is in reply to Mr. Rector's letter of April 4, 1984 and to follow up on our meeting with you and other DNR staff members on April 17, 1984. The following paragraphs specify several programs and responses to concerns raised by your department.

Groundwater Clean-up

Enclosed is Total's plan, based on recommendations by Fishbeck, Thompson, Carr and Huber, Inc. (FTC&H), for both for defining the extent of contamination and to capture the groundwater migrating from beneath the surface of the land treatment facility. Under this program we will prevent further migration of contaminants away from both the facility and from the old pits, plus withdraw a significant amount of the groundwater that has traveled downstream beyond the treatment area.

The concept is to install a slurry wall upgradient of the facility to minimize the shallow groundwater flow through the area plus installing an intercepting row of purge wells on the downgradient side. The downstream purge wells will prevent groundwater from flowing beyond them. At least two purge wells will also be installed in the old pit areas to withdraw groundwater and to reduce the amount of water which might be drawn away from the pit areas by the downstream purge wells. The water from all of the purge wells will be routed to our waste water treatment system. We will complete a study by June 1, 1984 which determines the biodegradability of the groundwater to be pumped from the purge wells.

Plans and specifications for the slurry wall and purge wells will be ready for DNR review by July 1, 1984. Construction on the purge well system can begin within 30 days after your approval of the project. Coordination with and mobilization of a slurry wall contractor may require up to 45 days after your approval.

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N'rail
Bunda
xta

The Extent of the Contamination

Total Petroleum's work plan prepared by Fishbeck, Thompson, Carr and Huber, Inc. (FTC&H) also contains a program for installing additional groundwater monitoring wells, downgradient of our refinery. Those wells will be installed in an intensive program which will continue until the extent of the plume is found. We anticipate that this part of our work plan can be completed within two weeks after May 14, 1984.

Specific Elevated Constituents

Two indicator parameters have been shown to be elevated in the groundwater downstream from the facility. Those parameters are conductivity and TOC. We have submitted to the Hazardous Waste Division analytical data on the anions and cations found in all of the monitoring wells. An anion/cation balance calculation has accounted for 90% of the constituents which are responsible for the elevated conductivity levels. Therefore, the constituents of the conductivity have been identified.

Identification of the TOC constituents has been more difficult and has not yet been accomplished. Late in 1983 we sent samples from three of our monitoring wells to a laboratory in Grand Rapids. That laboratory conducted an organic scan using GC/MS for volatile hydrocarbons plus acid and base neutral hydrocarbons, but was not able to identify the specific compounds responsible for the elevated TOC levels.

The DNR staff concurred with us that the previous GC/MS scan should be repeated and confirmed before more complex analyses are performed to attempt to identify the TOC constituents. In February 1984 we sent three groundwater samples to another laboratory. Enclosed are copies of their reports. This laboratory was also unable to identify the constituents of the TOC.

We have discussed this TOC identification problem with three well known laboratories. These laboratories are:

Rocky Mountain Analytical Laboratory, Arvada, Colorado. R.M.A. is recognized as having one of the most comprehensive laboratories in the Rocky Mountain area. They are presently performing the analytical work in conjunction with E.R.M.-Southwest to prepare delisting petitions for several refineries covering a multitude of waste types.

Skinner and Sherman Laboratories, Inc. in Waltham Massachusetts. Skinner and Sherman offers a broad range of analytical testing services and they have performed several complex analyses for Total Petroleum, Inc. in the past.

Battelle Columbus Laboratories in Columbus, Ohio. The analysis of hazardous and toxic substances in water is an active area of research at Battelle. We have concluded from our discussions with Battelle that they have a clear understanding of our problem. They have proposed to conduct a planned series of analytical steps which would make up an effective study of the organics in the groundwater from our facility.

All three of these firms have stated that they would try to specifically identify the compounds responsible for the TOC being found in the groundwater. However, they may only be able to characterize the species or the types of compounds that are responsible for the TOC.

We have decided to send a groundwater sample, from our MW 19, to Battelle, Columbus. This sample will be sent no later than May 15, 1984 and the analysis results are expected by July 15, 1984.

The Source of the Contamination

The elevated levels of contaminants that are being observed downgradient of the land treatment area are either emanating from the old pits, the land treatment facility or a combination of the pits and treatment facility. We continue to believe that the old pits are the most likely source of the contaminants being found in the groundwater.

We propose to conduct soil studies to evaluate if the present land treatment method is contributing to the problem.

Soil borings will be taken at six locations within the land treatment facility. A seventh boring will be taken near MW 4 as a background control boring. Samples of these borings will be taken by a splitspoon sampler at the surface and at two foot intervals down to the top of the first water bearing sand layer. The six boring locations are:

- . Four borings; one each lysimeters 1, 2, 3 and 5.
- . One in the northwest field near the site of B49 as shown on the enclosed 1979 map.
- . One in the south center field near B52 on the 1979 map.

Four of these proposed borings will be outside the old pits. The other two will be within the two largest pits.

We will compare the soil analysis from each of these borings to the analysis data for similarly located borings in the 1979 study. We will compare the following parameters with the 1979 study:

- pH
- Conductivity
- Oil and Grease (by Freon extraction)
- Lead
- Chrome

The purpose of the above study is to determine if migration of the above parameters is occurring downward to the water bearing sands and to evaluate any changes in contaminant levels that have taken place since 1979.

As a second part of this soil study, separate samples at two foot intervals from each soil boring will be sent to a private laboratory. In addition samples of our typical wastes will be sent to this laboratory. The soil and waste samples will be analyzed to characterize any organics in them into three categories:

- . One ring aromatics
- . Condensed ring aromatics (PNA's)
- . Polar aromatics

These samples will be obtained and sent no later than June 8, 1984. Total Petroleum's laboratory work will be completed by July 31, 1984. The private laboratory work will be completed by September 14, 1984.

Monitoring Data Questions

Mr. Rector's letter of April 4, 1984 expresses concern that lead levels may be elevated above background levels. We do not believe that the data supports this concern. Lead values measured for the background well (MW 4) have been less than the detection limit (.0003) mg/L. We did report detectable lead concentrations in five wells during August 1983. We also in October 1983 reported one lead concentration at the detection limit. However, upon review of the original data we discovered that this October value should have been reported as being less than the detection level ($<.0003$). Therefore, no detectable level of lead was again measured in any well during the four month's sampling after August of 1983. If we had been sampling on a less frequent than monthly schedule and a detectable level of lead had been measured in a well we would have first attempted to confirm that data by immediately resampling. This confirmation is required by both our permit and the federal regulations. However, a monthly sampling schedule does not allow time to resample. Accordingly, the confirmation of each month's data occurred during the next month's sampling. Since none of the August detectable lead levels were repeated those concentrations were not confirmed and in our view, they are invalid values.

This problem of reporting unconfirmed values is particularly acute when observing the concentration that we reported from MW 20 for August 22, 1983. At that time MW 20 was a new well and we were sampling it for the first time. There is an increased possibility of sample contamination of any new well because there are opportunities for outside contamination during the drilling and installation. Therefore, the first sampling of any new well should be confirmed before conclusions are made about that data. In the case of MW 20, the August 22nd lead data was not confirmed in subsequent samples and, therefore, the first data point should be regarded as being invalid. We also believe that the fact that the August 22nd lead value for MW 20 is much higher and inconsistent with all other values measured from the other wells should be an additional reason to be suspicious about that data's validity.

Mr. Rector's letter also mentions several other constituents from several wells that were shown to exceed background levels. Those constituents include chloride, sulfate, sodium, iron and manganese. These ions are the constituents which have resulted in the elevated conductivity levels being observed in the groundwater.

The letter also contains a reference to oil and grease being elevated in the groundwater. MW 6 showed one excursion above background and MW 21, upon its first sampling, showed one excursion. These two incidents were not repeated during subsequent sampling and we do not believe that these incidents are indicative of an oil and grease problem.

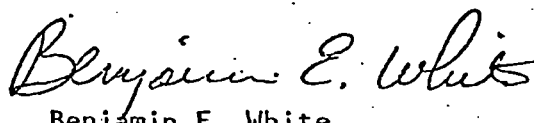
Total Petroleum, Inc's Objective

Our objective in conducting all of the projects mentioned above is to again be allowed to use the land treatment area for the treatment of our oily wastes. These proposals include a plan for stopping migration of contaminated groundwater off the site and for removal of the most contaminated groundwater in the vicinity of the facility. Once this removal system is complete it would operate continuously. Therefore, no further migration of any contaminants regardless of the source, should occur away from the site and further use of the treatment area would not be expected to affect the downstream groundwater.

Follow-up Meeting

During our discussions on April 17, 1984 a tentative follow-up meeting date of May 8, 1984 was suggested. Unfortunately, our hydrogeological consultant will not be available on May 8, 1984. We do wish to meet with you and Mr. Bohunsky to review these programs in the near future. Can we arrange a meeting time for May 9 or 10, 1984?

Sincerely,



Benjamin E. White

BEW:djw